

PREFACE

From day one, China's aviation industry has been serving as a major boost for local, national and even global economy. Civil aviation has been dramatically developed during the past nearly three decades. The significant increase benefited from the rise of aviation related research, including air traffic control, airports, air transport, general aviation, civil aircraft design, test, manufacture, integrated support, and airworthiness verification.

College of Civil Aviation (CCA), Nanjing University of Aeronautics and Astronautics (NUAA), was founded in 1993 by Civil Aviation Administration of China and former China Aviation Industry Corporation, for answering the call of fast growing civil aviation. After more than 20 years efforts, CCA has achieved extraordinary development and contributed great talents and academic progress to China's aviation industry. Today, CCA focuses on the following seven key subjects related to civil aviation:

1 Air traffic flow management

National Key Laboratory of Air Traffic Flow Management has hosted more than 50 projects, including the National 863 Plan project, key projects of National Science and Technology Support Plan, National Natural Science Foundation project, scientific research projects of National Air traffic Control Commission and Civil Aviation Administration of China. It stands at the NO.1 place in China's air traffic control research, in terms of offering intelligent experts and scientific support.

2 Flight simulation and engineering

Flight simulation and engineering research center for advanced training has hosted more than 10 projects including National 863 Plan project, National Natural Science Foundation project, key projects of Science and Technology Support Plan of Jiangsu Province, scientific research projects of Civil Aviation Administration of China, and Aviation Science Fund. The team also won the first prize in National and Provincial Science and Technology Reward. The center is now an unquestioned bellwether in research of landing gear, flight training simulation and light aircraft simulation system within China.

3 Aviation safety and security

The aviation safety and security technology research institute mainly engages in the research of condition monitoring technology, civil aircraft reliability, maintenance engineering, commercial aircraft operation support etc. CCA, NUAA, joining AVIC commercial aircraft Co., LTD. Co-founded "RMS engineering technology center" in 2003. In 2005, the institute and other four participants, including Civil Aviation University of China, co-founded CAAC key research base for civil aviation maintenance engineering. In 2009, the institute took part in the "civil aircraft maintenance engineering research center" led by Shanghai aircraft customer service company.

4 Civil aviation soft science

Civil aviation soft science research institute focuses on management system, enterprise development strategy, information management, logistics management, civil aviation marketing strategy, economy and market forecasts, aircraft leasing, economy and regional development in civil aviation. The research team has recruited excellent experts and professors majoring civil aviation, economy and management, and humanities. A professor from St. Jose State University is working as a key member in this team and has devoted a lot in academic exchange.

5 Airport system engineering

The airport system engineering research institute conducts research on civil airport planning and development, engineering construction, operation management, airport security, information and simulation.

6 Traffic information

The team of traffic information majors in traffic image processing, flight data comprehensive analysis, air-ground data communications and simulation and verification of new technologies in civil aviation. They have completed 10 projects including the National Natural Science Foundation project, Jiangsu Science and Technology Research Plan project, science research project of CAAC Civil Aviation Administration of projects, large aircraft special research project.

7 Flight system safety technology

The team of flight system safety technology has hosted one national excellence engineers project, established one provincial flight techniques professional experimental teaching demonstration center and carried out 24 teaching reform projects. In the scientific research side, the team hosted six national natural science fund project, four provincial scientific research project, 12 horizontal cooperation projects.

This special issue of Civil Aviation covers several articles presenting recent progress in the above mentioned seven areas, with highlights on air traffic control, aircraft design, and interdisciplinary subjects, like unmanned traffic control, air traffic controllers' cognition. We are also honored to invite Professor Washington Yotto Ochieng to contribute to this issue. Professor Washington Yotto Ochieng is the Head of the Centre for Transport Studies and Chair of Positioning and Navigation Systems in the Department of Civil and Environmental Engineering at Imperial College London. He is also the Director of the Imperial College Engineering Geomatics Group (ICEGG). Professor Ochieng's research interests are in the design of positioning and navigation systems for land, sea and air applications; Air Traffic Management (ATM) and Intelligent Transport Systems (ITS). He has made significant contributions to major international projects including the design of the European Geostationary Navigation Overlay Service (EGNOS) and GALILEO, GNSS measurement error modelling, specification of aircraft trajectory management tools for the Single European Sky's ATM Research (SESAR) programme, and integrated positioning and navigation systems for many applications including ITS. In 2013, Professor Ochieng was elected Fellow of the Royal Acad-

emy of Engineering (FREng) in recognition of his exceptional contribution to engineering.

I, on behalf of all editors, would like to thank all the reviewers for their excellent work and the authors for their contribution. We expect that this special issue will provide a profound assistance for authors and the readers, with a comprehensive overview of the most recent developments in civil aviation research.

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